

**BUREAU OF ENVIRONMENTAL REMEDIATION/REMEDIAL SECTION
GUIDELINE
REMOVAL SITE EVALUATION (RSE)/REMOVAL ACTION
DESIGN (RAD)/REMOVAL ACTION (RA)**

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Bureau Manager:



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Date: 1995

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A Removal Action can be defined as a prompt response action to actual or imminent threats to human health and/or the environment. Removal Actions are conducted to mitigate releases or potential releases of contaminants to minimize potential exposure or threats to health and the environment. Removal Actions under this Scope of Work (SOW) include:

- Drum, waste or contaminated soil removal;
- Security fencing or other measures to prevent access;
- Construction of drainage controls, stabilization of release mechanisms;
- Capping of contaminated surficial areas;
- Providing an alternate water supply; and
- Preventing exposure to human health and/or the environment.

This SOW for a **Removal Site Evaluation and Removal Action (RSE/RA)** provides an outline to abate, prevent, minimize, stabilize, mitigate or eliminate the release or the threat of release of a contaminant(s) from the site. Conditions considered appropriate for a Removal Action are defined by the National Oil and Hazardous Substances Contingency Plan (NCP) §300.415 (b-1) and include:

- 1) Actual or potential exposure to human health and/or environment from a hazardous substance(s), pollutant(s) or contaminant(s);
- 2) Actual or potential contamination of drinking water supplies or sensitive ecosystems;
- 3) High levels of hazardous substances(s), pollutant(s), or contaminant(s) in soils largely at or near the surface which may migrate and act as source areas to contaminate adjacent soils, sediment, surface and ground water; and
- 4) Other situations or factors posing a threat to public health, welfare, or the environment.

The RSE/RA is intended to be a flexible process in which portions can be waived or modified upon discretion of the KDHE Project Manager.

The primary objectives of the **Removal Site Evaluation (RSE)** are described as follows:

- 1) Determine the extent of contamination by contaminants of concern and evaluate the threat to human health and/or the environment;
- 2) Determine the migration of and the chemical/physical properties of the contaminants;
- 3) Collect the data necessary to select an appropriate removal action; and
- 4) Gather a sufficient amount of data to support the design parameters of the proposed removal action.

The RSE may be waived if adequate site information is present in another form, i.e. as a Screening Site Inspection or Expanded Site Inspection (SSI or ESI), KDHE approved Preliminary Investigation (PI), Comprehensive Investigation (CI) or equivalent investigation if the designated KDHE Project Manager agrees that adequate information exists which meets the objectives noted above; and if the investigation indicated a removal action is appropriate. If the RSE is waived the process can proceed directly to the Removal Action (RA) phase, with the existing investigative data summarized and/or included in the Removal Action Design (RAD) Plan.

The primary objectives of the **Removal Action Design (RAD)** are described below:

- 1) To evaluate the feasibility, effectiveness, and cost of at least two (2) viable removal actions based on the findings of the RSE and to evaluate the "no action" alternative;
- 2) To recommend and justify a specific removal action for the site consistent with long term remedial goals;
- 3) To determine the health and environmental effects of the Removal Action;
- 4) Establish up- and down-gradient ground water monitoring criteria for the performance of the Removal Action; and
- 5) To provide adequate documentation to support the Removal Action as being consistent with long-term remedial goals in the absence of a Corrective Action Study (CAS) if the KDHE Project Manager has determined that a CAS is not necessary for the site.

This SOW outlines the activities to be completed as part of the RSE/RAD. A Work Plan describing in detail the RSE/RAD activities must be developed and submitted to KDHE for review and approval. In addition, the Work Plan shall include the following section or appendices as appropriate: 1) Removal Site Evaluation Plan; 2) Quality Assurance Project Plan; 3) Health and Safety Plan; and 4) Removal Action Design Plan. An implementation schedule of all RSE/RAD activities outlined in this SOW should be included in the RSE/RAD Work Plan.

REMOVAL SITE EVALUATION

The RSE shall at a minimum include the following components:

- 1.0 A review of available information and documented findings;
- 2.0 A description of the physical characteristics of the site including the geology, soils, hydrogeology, surface hydrology, land use, and meteorology, at a minimum;
- 3.0 Detailed description of the type(s) of contaminants involved, release characteristics and contaminated media;
- 4.0 Procedures used to determine the nature and extent of the contaminant(s) and evaluate the transport pathways;
- 5.0 A screening risk assessment appropriate for determining site risk and removal goals may be required. The KDHE Project Manager will establish the need for and the scope of the risk assessment. The risk assessment should concentrate on the specific impacts and exposure threats the removal is to address in order to evaluate potential threat to human health and the environment, and establish appropriate removal action response goals.

REMOVAL ACTION DESIGN REPORT

The RAD shall evaluate at least two possible removal action alternatives from data collected. The removal action alternatives and "no action" alternative shall address threats to human health and the environment. The evaluation shall include:

- 1) Summary of RSE work completed (if appropriate);
- 2) Description of contaminants of concern, including a discussion and summary of data collected (with appropriate QA/QC and data validation information);
- 3) An evaluation of possible exposure pathways including areal extent of contaminants of concern;
- 4) Removal action goals and appropriate action levels;
- 5) A description of at least two potential removal action alternatives and a "no action" alternative for the site, including an evaluation of the effectiveness of the removal action alternatives in terms of the long term remedial objectives and reduction of risk to health and the environment;
- 6) A comparison and justification of the costs of each removal action;
- 7) A consideration of appropriate regulations, ARARs, etc. pertinent to each removal action alternative evaluated;

- 8) Selection of an appropriate removal action giving adequate supporting rationale for its selection based on the above defined criteria. Necessary plans, diagrams, etc. to implement the proposed removal action should be included; and,
- 9) Establishment of adequate post-removal confirmation sampling to determine removal action performance.

REMOVAL ACTION PLAN

If determined necessary by the KDHE Project Manager after approval of the RAD, a Removal Action Plan containing additional designs, technical specifications, etc. of the preferred removal alternative will be submitted to KDHE for review and approval according to the KDHE-approved schedule.

Note: For those removal actions which the KDHE Project Manager has determined will entail long-term monitoring or constitute a portion of a longer term remedial action, the removal action process should be consistent with the remedial action (investigation /remediation) for the site. The removal action alternative selected should be consistent with the preferred alternative selected in the Corrective Action Decision for the site. For example, the CAS may identify the previously implemented removal action in addition to institutional controls and long-term monitoring as the preferred alternative, if appropriate.

REMOVAL ACTION SUMMARY REPORT

A Removal Action Summary Report shall be submitted after completion of the removal action performed according to the KDHE-approved RAD. The Removal Action Summary Report shall include a final summary of removal action activity and an evaluation of the post-removal action confirmation sampling relative to removal action goals.

COMMUNITY RELATIONS ACTIVITIES

A Public Information Program (Policy #BER-RS-002) should be followed for all activities under this SOW. An NCP-consistent Community Relations Plan (CRP) may be necessary at certain sites and will be implemented upon discretion of the KDHE Project Manager.